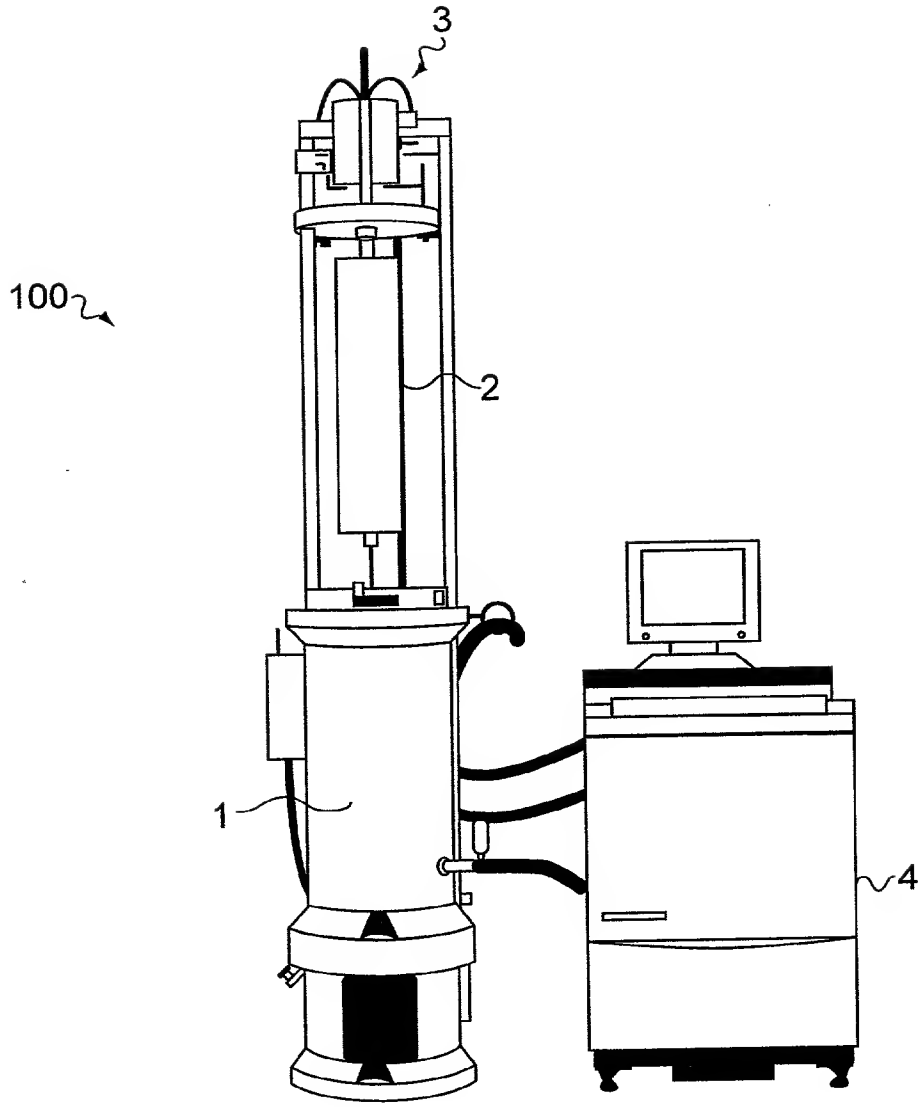

FIG. 1

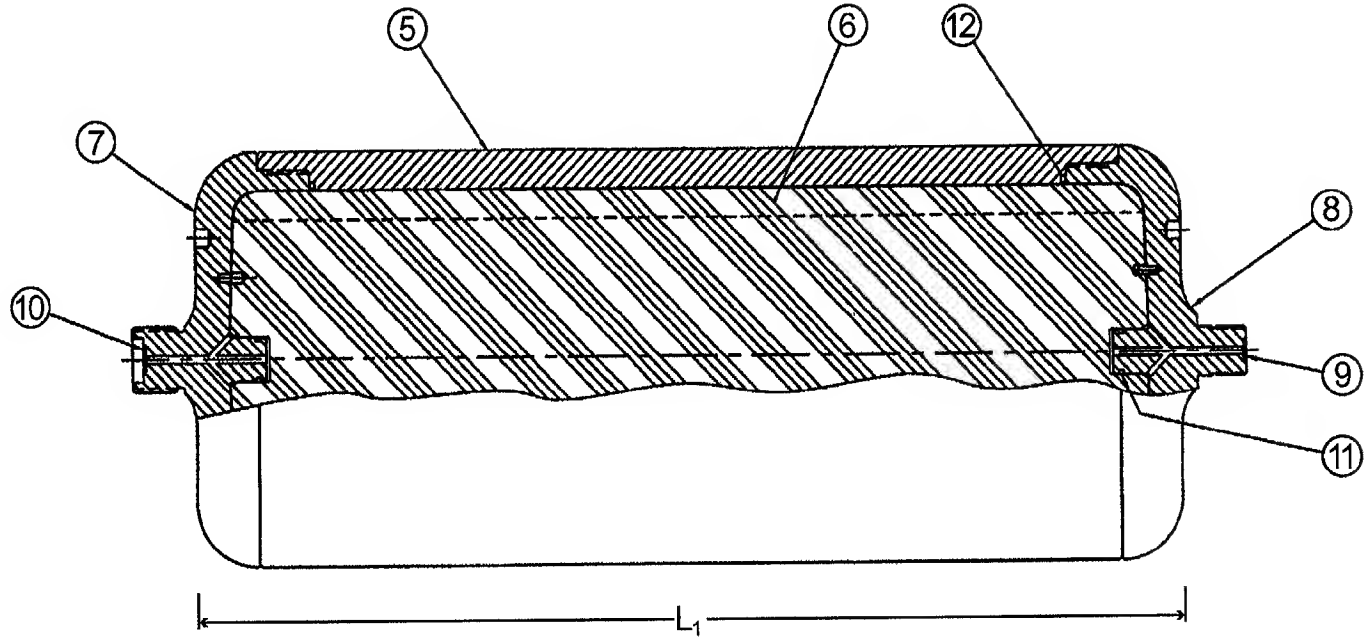

FIG. 2A

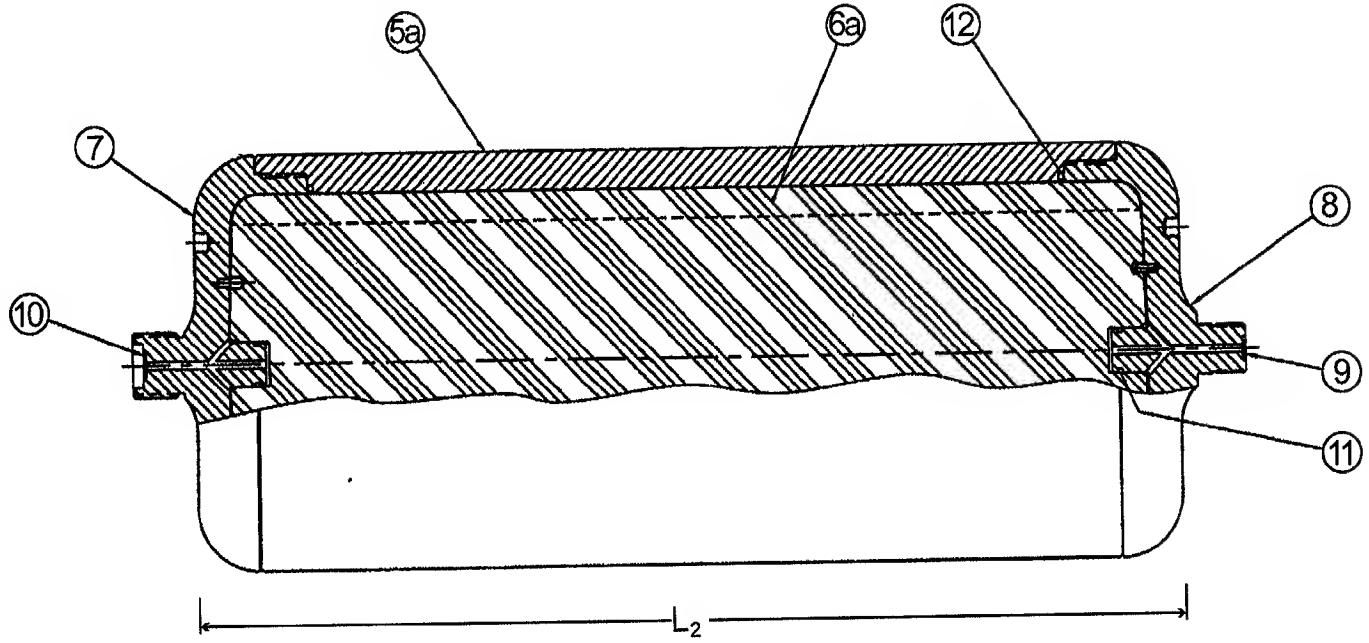

FIG. 2B

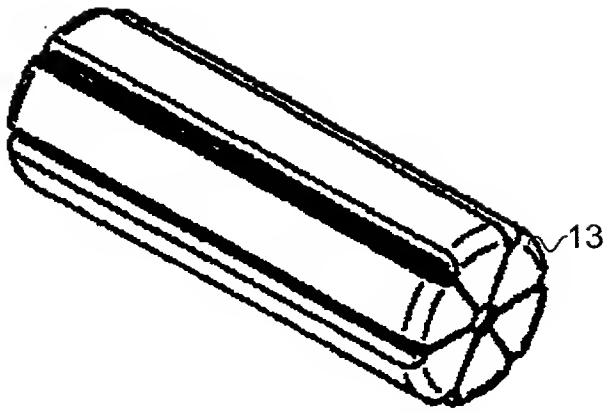

FIG. 3A

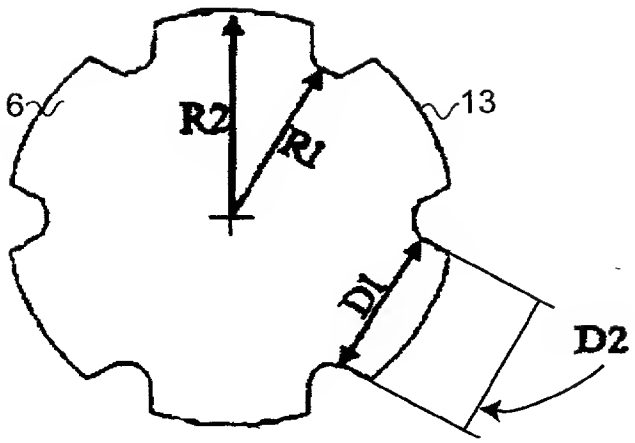

FIG. 3B

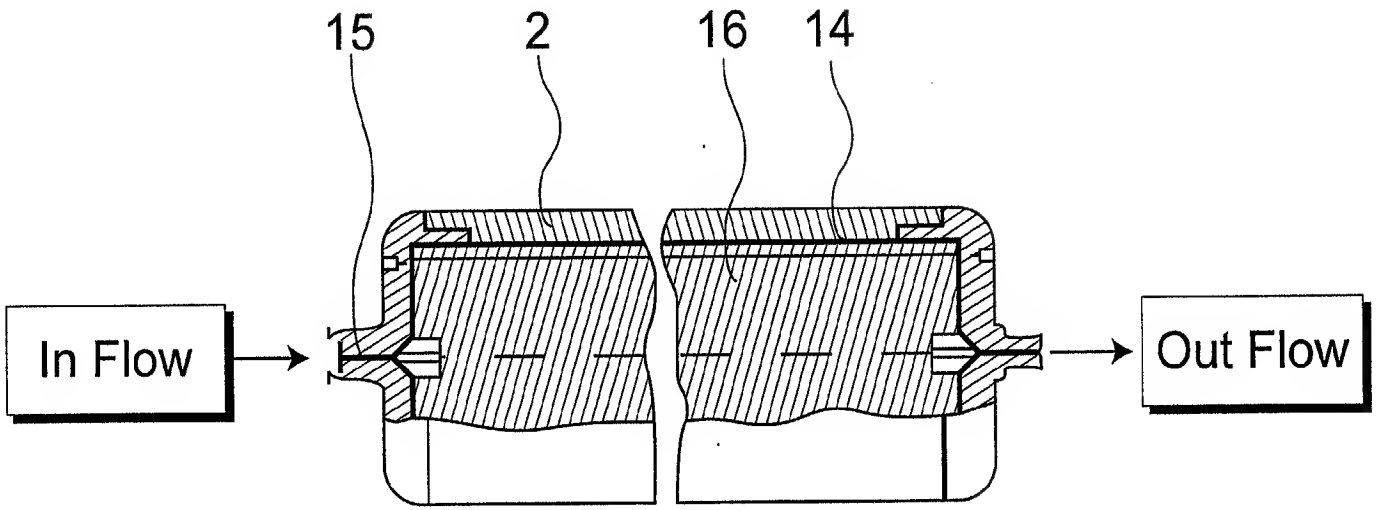

FIG. 4

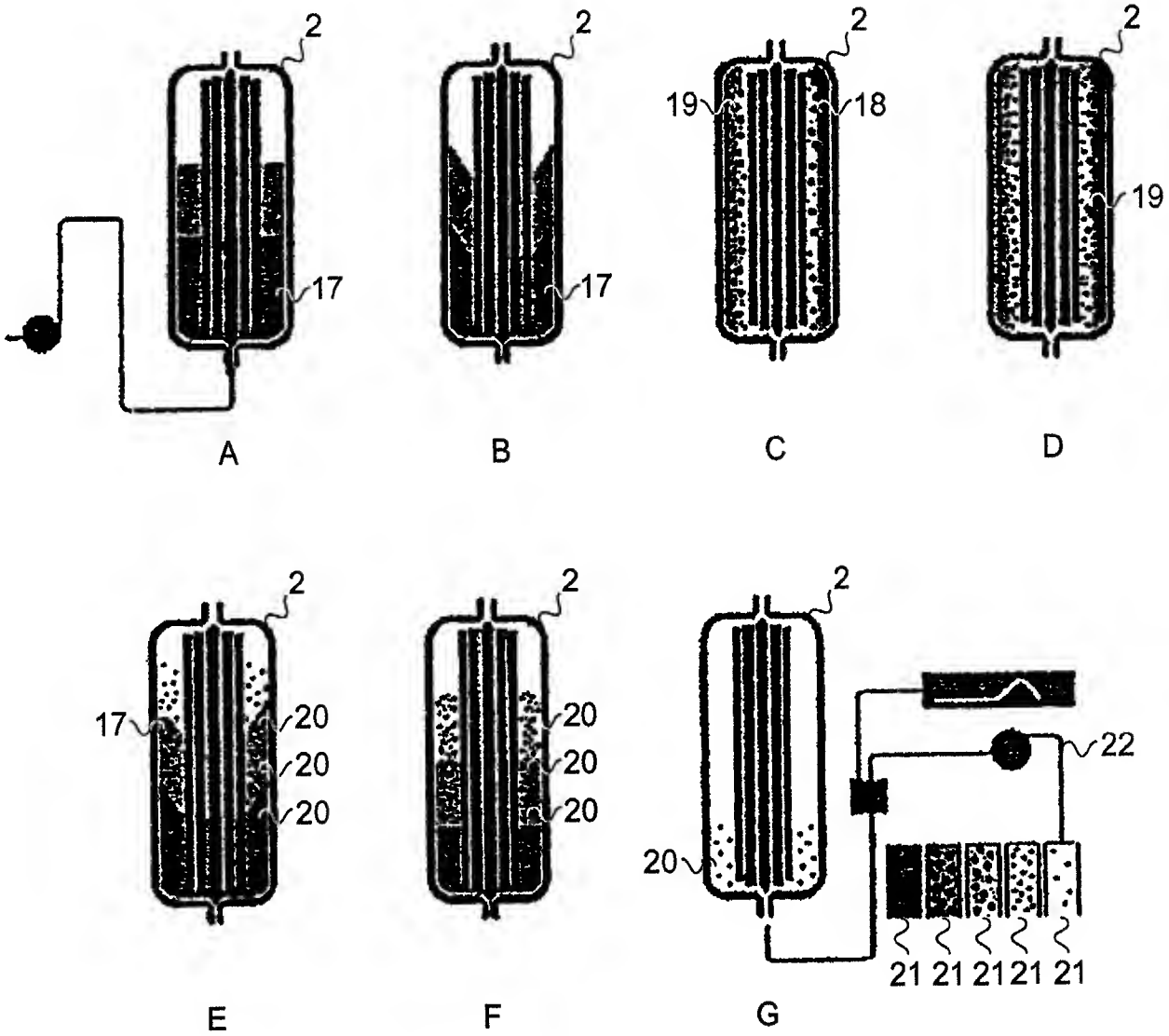
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FIG. 5

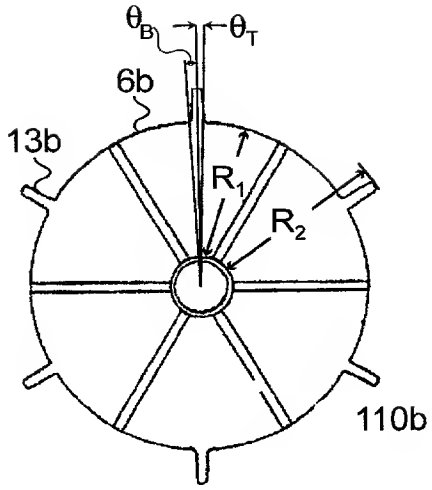

FIG. 6

66.0	R2	Outer Radius of the Core in mm	2.598	inches			
54.5	R1	Inner Radius in mm	2.145	inches			
	Theta-T	Angle formed by one-half the top fin surface in radians			0.0160	0.91527174	degrees
	Theta-B	Angle formed by one-half the bottom fin surface in radians			0.0106	0.60780781	degrees
764.3	L	Length of the Core in mm					
30.090							

V2	Total volume of the Cylinder:	10455661.2	mm^3	10456	mL
V1	Total volume of the Core trunk:	7124023.0	mm^3	7124	mL
W1	Fin Volume Component 1:	8470.4	mm^3	102	mL
C1	Length of the Chord formed for W2:	0.6	mm	0.023	inch
W2	Fin Volume Component 2:	2543.2	mm^3	31	mL
	Available Volume:	3,199.47	mm^3	=	3.2 L

	D1	Lateral distance across fin bottom in mm	0.114	inches	(D2+0.031")	2.8956
2.1	D2	Lateral distance across fin top In mm	0.083	inches		
0.083						

				Intermediate Terms	
Calculated Theta-T in radians	0.0160	0.915272	degrees	0.999	
Calculated (Theta-T+Theta-B) in radians	0.0266	1.52308	degrees	0.999	
Calculated Theta-B in radians	0.0106	0.607808	degrees		
Calculated fin Wall Angle in radians	-1.5366	-88.04247	degrees	11.5189	-0.3937

FIG. 7

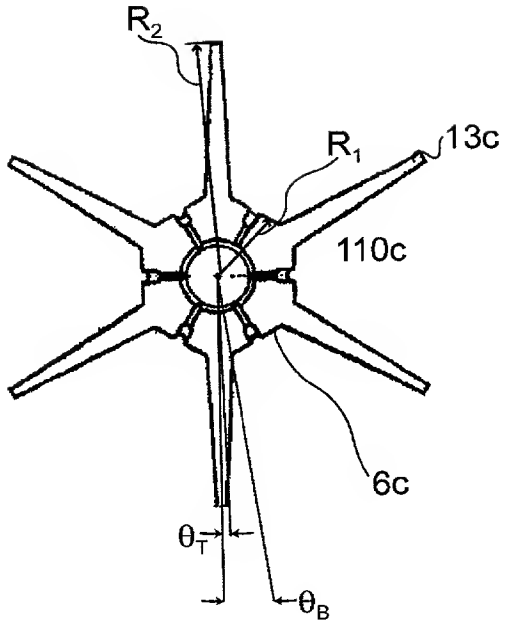

FIG. 8

66.0	R2	Outer Radius of the Core in mm	2.598	inches				
21.0	R1	Inner Radius in mm	0.825	inches				
	Theta-T	Angle formed by one-half the top fin surface in radians	0.0192		1.10275822	degrees		
	Theta-B	Angle formed by one-half the bottom fin surface in radians	0.1329		7.6119838	degrees		
754.1	L	Length of the Core in mm						
29.690								
V2	Total volume of the Cylinder:		10316669.4	mm^3	10317	mL		
V1	Total volume of the Core trunk:		1040325.2	mm^3	1040	mL	Outer	Inner
W1	Fin Volume Component 1:		28415.5	mm^3	341	mL	31602.2	3186.742
C1	Length of the Chord formed for W2:		2.8	mm	0.110	inch		
W2	Fin Volume Component 2:		47172.1	mm^3	566	mL	62.6377	0.085731
	Available Volume:		8369.29	mm^3	8.4	L		
	D1	Lateral distance across fin bottom in mm		0.250	inches	(D2+0.031")	0.1350	
2.5	D2	Lateral distance across fin top in mm		0.100	Inches			
0.100							Intermediate Terms	
	Calculated Theta-T in radians		0.0192		1.102758	degrees	0.999	
	Calculated (Theta-T+Theta-B) in radians		0.1521		8.714742	degrees	0.954	
	Calculated Theta-B in radians		0.1329		7.611984	degrees		
	Calculated fin Wall Angle in radians		-1.5285		-87.57776	degrees	45.0342	-1.905

FIG. 9

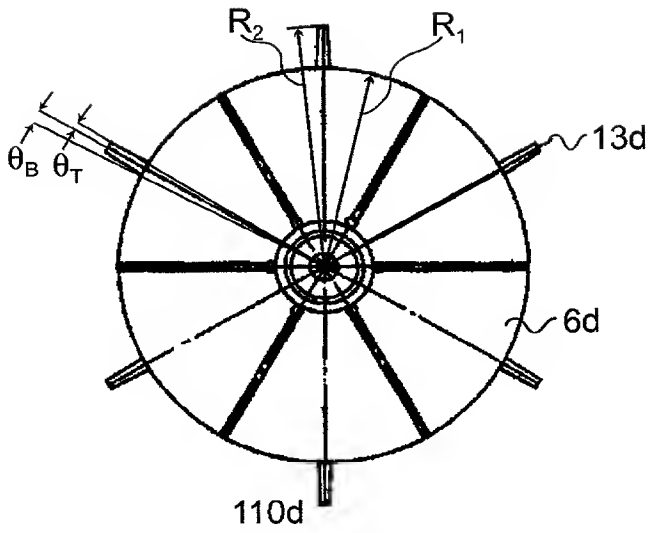

FIG. 10

66.0	R2	Outer Radius of the Core in mm	2.598	Inches				
54.5	R1	Inner Radius in mm	2.145	inches				
	Theta-T	Angle formed by one-half the top fin surface in radians			0.91527174	degrees		
	Theta-B	Angle formed by one-half the bottom fin surface in radians			0.60780781	degrees		
762.7	L	Length of the Core in mm						
30.027								
V2	Total volume of the Cylinder:		10433770.0	mm^3	10434	mL		
V1	Total volume of the Core trunk:		7109107.3	mm^3	7109	mL	Outer	Inner
W1	Fin Volume Component 1:		8452.7	mm^3	101	mL	26527.04	18074.35
C1	Length of the Chord formed for W2:		0.6	mm	0.023	inch		
W2	Fin Volume Component 2:		2537.9	mm^3	30	mL	3.327887	0.000295
	Available Volume					= 3.2 L		
	D1	Lateral distance across fin bottom in mm		0.114	Inches	(D2+0.031")		
2.1	D2	Lateral distance across fin top in mm		0.083	inches			
0.083								
							Intermediate Terms	
	Calculated Theta-T in radians		0.0160		0.915272	degrees	0.999	
	Calculated (Theta-T+Theta-B) in radians		0.0266		1.52308	degrees	0.999	
	Calculated Theta-B in radians		0.0106		0.607808	degrees		
	Calculated fin Wall Angle in radians		-1.5366		-88.04247	degrees	11.5189	-0.3937

FIG. 11

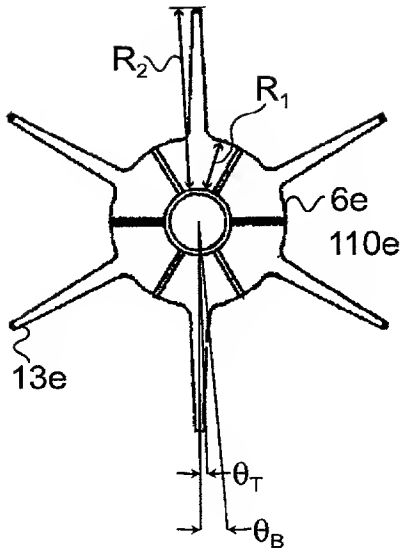

FIG. 12

66.0	R2	Outer Radius of the Core in mm	2.598	inches			
26.7	R1	Inner Radius in mm	1.052	inches			
	Theta-T	Angle formed by one-half the top fin surface in radians	0.0217	1.2461381	degrees		
	Theta-B	Angle formed by one-half the bottom fin surface in radians	0.0844	4.83798852	degrees		
764.3	L	Length of the Core in mm					
30.090							
V2	Total volume of the Cylinder:		10455661.2	mm^3	10456	mL	
V1	Total volume of the Core trunk:		1714370.5	mm^3	1714	mL	Outer Inner
W1	Fin Volume Component 1:		30257.9	mm^3	363	mL	36192.22 5934.284
C1	Length of the Chord formed for W2:		2.3	mm	0.089	inch	
W2	Fin Volume Component 2:		33818.5	mm^3	406	mL	44.28434 0.035809
	Available Volume:		7972.32	mm^3	=	8.0 L	
	D1	Lateral distance across fin bottom in mm		0.223	inches	(D2+0.031")	
2.9	D2	Lateral distance across fin top in mm		0.113	inches		
0.113							
							Intermediate Terms
	Calculated Theta-T in radians		0.0217	1.246138	degrees		0.999
	Calculated (Theta-T+Theta-B) In radians		0.1062	6.084127	degrees		0.978
	Calculated Theta-B in radians		0.0844	4.837989	degrees		
	Calculated fin Wall Angle in radians		-1.5352	-87.96252	degrees		39.2684 -1.397

FIG. 13

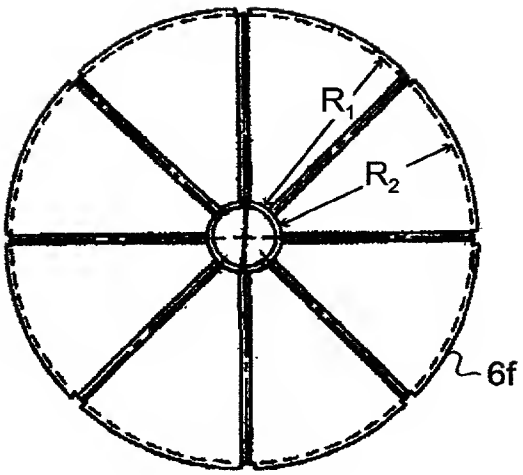

FIG. 14

66.0	R2	Outer Radius of the Core in mm		2.598	inches			
65.0	R1	Inner Radius in mm		2.561	inches			
	Theta-T	Angle formed by one-half the top fin surface in radians		0.0000		0	degrees	
	Theta-B	Angle formed by one-half the bottom fin surface in radians		0.0000		0	degrees	
764.3	L	Length of the Core in mm						
30.090								
V2	Total volume of the Cylinder:		10455661.2	mm^3	10456	mL		
V1	Total volume of the Core trunk:		10159968.6	mm^3	10160	mL	Outer	Inner
W1	Fin Volume Component 1:		0.0	mm^3	0	mL	0	0
C1	Length of the Chord formed for W2:		0.0	mm	0.000	inch		
W2	Fin Volume Component 2:		0.0	mm^3	0	mL	0	0
	Available Volume:		295.69	mm^3	=	0.3	L	
	D1	Lateral distance across fin bottom in mm		0.000	inches	(D2+0.031")	0.0000	
0.0	D2	Lateral distance across fin top in mm		0.000	inches			
0.0000								
							Intermediate Terms	
	Calculated Theta-T in radians		0.0000		0	degrees	1.000	
	Calculated (Theta-T+Theta-B) in radians		0.0000		0	degrees	1.000	
	Calculated Theta-B in radians		0.0000		0	degrees		
	Calculated fin Wall Angle in radians		#DIV/0!		#DIV/0!	degrees	0.9398	0

FIG. 15

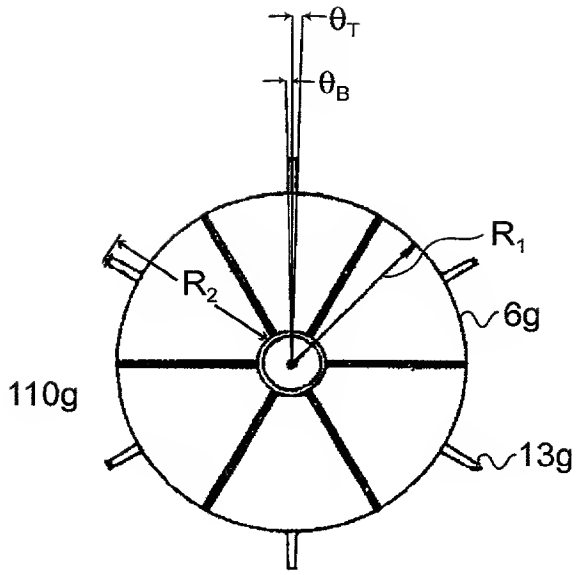

FIG. 16

66.0	R2	Outer Radius of the Core in mm	2.598	inches	5.196	
54.5	R1	Inner Radius in mm	2.145	inches	4.29	
	Theta-T	Angle formed by one-half the top fin surface in radians	0.0160	0.91527174	degrees	
	Theta-B	Angle formed by one-half the bottom fin surface in radians	0.0106	0.6074527	degrees	
382.1	L	Length of the Core in mm				

V2	Total volume of the Cylinder:	5227135.7	mm^3	5227	mL	
V1	Total volume of the Core trunk:	3563198.9	mm^3	3563	mL	
W1	Fin Volume Component 1:	4230.4	mm^3	51	mL	
C1	Length of the Chord formed for W2:	0.6	mm	0.023	inch	
W2	Fin Volume Component 2:	1269.6	mm^3	15	mL	
	Available Volume:	[illegible]		= 1664	mL	

	D1	Lateral distance across fin bottom in mm	0.114	inches	(D2+0.031")
2.1	D2	Lateral distance across fin top In mm	0.083	inches	
0.083					

				Intermediate Terms	
	Calculated Theta-T in radians	0.0160	0.915272 degrees	0.999	
	Calculated (Theta-T+Theta-B) in radians	0.0266	1.522724 degrees	0.999	
	Calculated Theta-B in radians	0.0106	0.607453 degrees		
	Calculated fin Wall Angle in radians	-1.5366	-88.04031 degrees	11.5062	-0.3937

	Outer	Inner
	13289.58	9059.154
	3.32305	0.000295

FIG. 17

66.0	R2	Outer Radius of the Core in mm	2.598	inches		
54.5	R1	Inner Radius in mm	2.145	inches		
	Theta-T	Angle formed by one-half the top fin surface in radians	0.2521	14.4433492	degrees	
	Theta-B	Angle formed by one-half the bottom fin surface in radians	0.0625	3.57949303	degrees	
382.1	L	Length of the Core in mm				

V2	Total volume of the Cylinder:	5227135.7	mm^3	5227	mL	
V1	Total volume of the Core trunk:	3561538.0	mm^3	3562	mL	Outer inner
W1	Fin Volume Component 1:	66824.5	mm^3	802	mL	209714.8 142890.4
C1	Length of the Chord formed for W2:	3.4	mm	0.134	inch	
W2	Fin Volume Component 2:	7405.1	mm^3	89	mL	19.44062 0.060277
	Available volume:			0.8	L	

	D1	Lateral distance across fin bottom in mm	1.327	inches	(D2+0.031")
32.9	D2	Lateral distance across fin top in mm	1.296	inches	
1.296					

				Intermediate Terms	
Calculated Theta-T in radians	0.2521	14.44335	degrees	0.876	
Calculated (Theta-T+Theta-B) in radians	0.3146	18.02284	degrees	0.809	
Calculated Theta-B in radians	0.0625	3.579493	degrees		
Calculated fin Wall Angle in radians	-1.5366	-88.04247	degrees	11.5189	-0.3937

FIG. 18

66.0	R2	Outer Radius of the Core in mm	2.598	Inches	5.196	
54.5	R1	Inner Radius in mm	2.145	inches	4.29	
	Theta-T	Angle formed by one-half the top fin surface in radians	0.3640	20.8573877	degrees	
	Theta-B	Angle formed by one-half the bottom fin surface in radians	0.0899	5.14837464	degrees	
382.1	L	Length of the Core in mm				

V2	Total volume of the Cylinder:	5227135.7	mm^3	5227	mL	
V1	Total volume of the Core trunk:	3563198.9	mm^3	3563	mL	Outer Inner
W1	Fin Volume Component 1:	96403.8	mm^3	1157	mL	302845.5 206441.7
C1	Length of the Chord formed for W2:	4.9	mm	0.193	inch	
W2	Fin Volume Component 2:	10511.8	mm^3	126	mL	27.69047 0.179394
	Available Volume	380.3	mm^3	= 0.4	L	

	D1	Lateral distance across fin bottom in mm	1.881 inches	(D2+0.031")	
47.0	D2	Lateral distance across fin top in mm	1.850 inches		
1.850					

				Intermediate Terms	
Calculated Theta-T in radians	0.3640	20.85739	degrees	0.746	
Calculated (Theta-T+Theta-B) in radians	0.4539	26.00576	degrees	0.616	
Calculated Theta-B in radians	0.0899	5.148375	degrees		
Calculated fin Wall Angle in radians	-1.5366	-88.04031	degrees	11.5062	-0.3937

FIG. 19

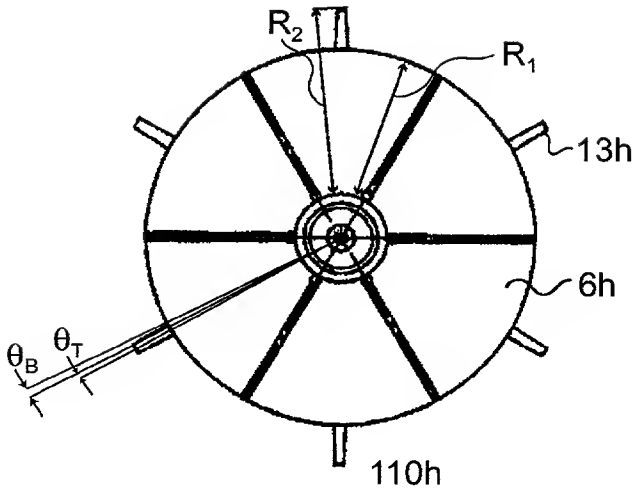

FIG. 20

66.0	R2	Outer Radius of the Core in mm	2.598	inches	
54.5	R1	Inner Radius in mm	2.145	inches	
	Theta-T	Angle formed by one-half the top fin surface in radians	0.0219	1.25716763	degrees
	Theta-B	Angle formed by one-half the bottom fin surface in radians	0.0119	0.6802237	degrees
380.5	L	Length of the Core in mm			

V2	Total volume of the Cylinder:	5205244.4	mm^3	5205	mL	
V1	Total volume of the Core trunk:	3546622.3	mm^3	3547	mL	Outer Inner
W1	Fin Volume Component 1:	5792.1	mm^3	70	mL	18177.4 12385.27
C1	Length of the Chord formed for W2:	0.6	mm	0.025	inch	
W2	Fin Volume Component 2:	1416.9	mm^3	17	mL	3.724271 0.000414
	Available Volume	[illegible]		[illegible]		

	D1	Lateral distance across fin bottom in mm	0.145	inches	(D2+0.031")
2.9	D2	Lateral distance across fin top in mm	0.114	inches	
0.114					

				Intermediate Terms	
	Calculated Theta-T in radians	0.0219	1.257168 degrees	0.999	
	Calculated (Theta-T+Theta-B) in radians	0.0338	1.937391 degrees	0.998	
	Calculated Theta-B in radians	0.0119	0.680224 degrees		
	Calculated fin Wall Angle in radians	-1.5366	-88.04247 degrees	11.5189	-0.3937

FIG. 21

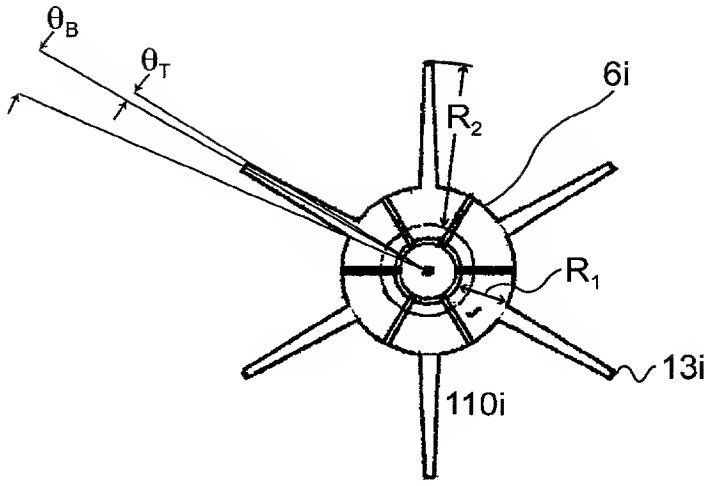

FIG. 22

66.0	R2	Outer Radius of the Core in mm	2.598	inches	[illegible]			
26.7	R1	Inner Radius in mm	1.052	Inches	[illegible]			
	Theta-T	Angle formed by one-half the top fin surface in radians	0.0217	1.2461381	degrees			
	Theta-B	Angle formed by one-half the bottom fin surface in radians	0.1276	7.30918223	degrees			
382.1	L	Length of the Core in mm						
15.043								
V2	Total volume of the Cylinder:		5227135.7	mm^3	5227	mL		
V1	Total volume of the Core trunk:		857071.3	mm^3	857	mL	Outer	Inner
W1	Fin Volume Component 1:		15127.0	mm^3	182	mL	18093.7	2966.748
C1	Length of the Chord formed for W2:		3.4	mm	0.134	inch		
W2	Fin Volume Component 2:		25506.7	mm^3	306	mL	66.87882	0.123425
	Available Volume:		[illegible]	mm^3	= 3.9 L			
	D1	Lateral distance across fin bottom in mm	0.313	inches	(D2+0.031")	[illegible]		
2.9	D2	Lateral distance across fin top in mm	0.113	inches				
0.113							Intermediate Terms	
	Calculated Theta-T in radians		0.0217		1.246138	degrees	0.999	
	Calculated (Theta-T+Theta-B) in radians		0.1493		8.55532	degrees	0.956	
	Calculated Theta-B in radians		0.1276		7.309182	degrees		
	Calculated fin Wall Angle in radians		-1.5062		-86.29909	degrees	39.2684	-2.54

FIG. 23

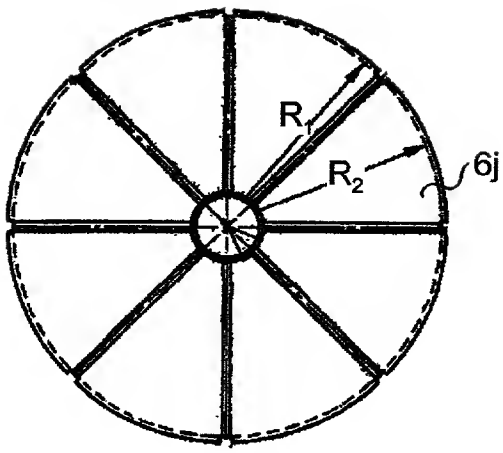

FIG. 24

66.0	R2	Outer Radius of the Core in mm	2.598	inches			
66.0	R1	Inner Radius In mm	2.561	inches			
	Theta-T	Angle formed by one-half the top fin surface in radians	0.0000		0	degrees	
	Theta-B	Angle formed by one-half the bottom fin surface in radians	0.0000		0	degrees	
382.1	L	Length of the Core in mm					
15.043							
V2	Total volume of the Cylinder:		5227135.7	mm^3	5227	mL	
V1	Total volume of the Core trunk:		5079309.0	mm^3	5079	mL	Outer Inner
W1	Fin Volume Component 1:		0.0	mm^3	0	mL	0 0
C1	Length of the Chord formed for W2:		0.0	mm	0.000	inch	
W2	Fin Volume Component 2:		0.0	mm^3	0	mL	0 0
	Available Volume:		[illegible]	mm^3	= 0.1	L	
	D1	Lateral distance across fin bottom in mm	0.000	inches	(D2+0.031")		
0.0	D2	Lateral distance across fin top in mm	0.000	inches			
0.0000							
							Intermediate Terms
	Calculated Theta-T in radians		0.0000		0	degrees	1.000
	Calculated (Theta-T+Theta-B) in radians		0.0000		0	degrees	1.000
	Calculated Theta-B in radians		0.0000		0	degrees	
	Calculated fin Wall Angle in radians		#DIV/0!		#DIV/0!	degrees	0.9398 0

FIG. 25

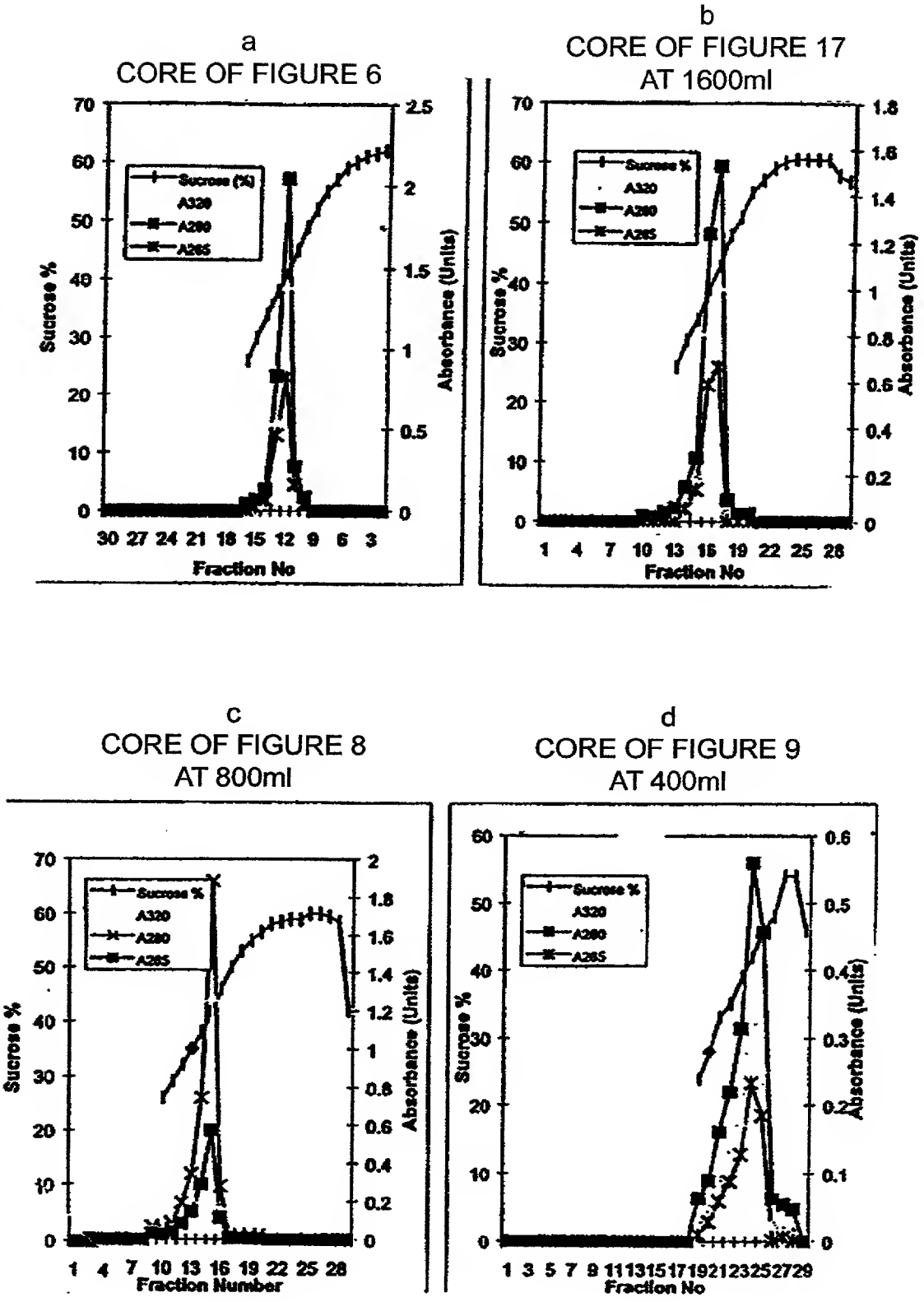
a
CORE OF FIGURE 6
b
CORE OF FIGURE 17
AT 1600ml
c
CORE OF FIGURE 8
AT 800ml
d
CORE OF FIGURE 9
AT 400ml
Sucrose %
A320
A280
A265
Absorbance (Units)
Fraction No
Fraction Number

FIG. 26